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Newsletter for the Employees of Ames Laboratory ■ Volume 13, Number 5 ■ May 2002

Magnetic Refrigeration Featured at Energy Ministers Conference

Office of Science Selects Lab's "Cool Work" for G-8 Event

"It works," was the comment from Secretary of Energy Spencer Abraham about the magnetic refrigeration unit demonstrated to him by Karl Gschneidner Jr. at the Conference of G-8 Energy Ministers in Detroit, Michigan, May 1-3.

Ames Lab's display was one of eight from DOE laboratories

and programs chosen by the Office of Science to represent the DOE in an exhibit at the G-8 conference. Conference attendees included energy ministers from the eight most powerful countries — the United States, Canada, France, Germany, Italy, Japan, Russia, the United Kingdom and the European Nation. The ministers work to promote and implement policies geared toward meeting the global energy and environmental

challenges of the 21st century.

Some of those issues include energy security and energy-technology development.

Ames Lab's display featured magnetic refrigeration technology, which is based on the magnetocaloric effect, or the ability of some materials, such as gadolinium, to heat up when placed in a magnetic field and then cool down when removed from the field. Magnetic refrigeration is more efficient than conventional refrigeration and does not use harmful gases or hazardous chemicals to operate. Research at Ames Lab on magnetic refrigeration is sponsored by DOE's Laboratory Technology Research Program, Office of Computational and Technology Research. Gschneidner, senior metallurgist, and Vitalij Pecharsky, senior scientist, lead the nation in

continued on page 2



Karl Gschneidner (left) welcomes Secretary Abraham to the Ames Lab display. The Secretary is joined by Argonne National Laboratory Director Hermann Grunder (far right) who, with the Secretary, cut the red ribbon to open the DOE exhibit at the G-8 conference.

Magnetic refrigeration featured at conference *continued from page 1*

research on the magnetocaloric effect. A highlight of the exhibit was the working prototype of a room-temperature, permanent-magnet-based magnetic refrigerator built by Carl Zimm and

colleagues of Astronautics Corp. of America. When fully developed, magnetic refrigeration could revolutionize the refrigeration industry.

The Ames Lab/Astronautics



Manning the display at the G-8 Conference were (from left) Carl Zimm, Astronautics Corp.; Vitalij Pecharsky, Ames Lab; Karl Gschneidner, Ames Lab; Steve Karsjen, Ames Lab; and Steve Russek, Astronautics Corp.

exhibit was chosen to serve as the backdrop for the ribbon-cutting ceremony to officially open the G-8 Conference. Amid a throng of media, Secretary Abraham, who was joined by Hermann A. Grunder, director of Argonne National Lab, cut the ceremonial ribbon then turned to Gschneidner for an explanation of magnetic refrigeration. Upon touching the small panel that registered the approximately 44 degree cooling effect of the refrigerator, Secretary Abraham enthusiastically announced, "I've read the description. It's amazing to see it work."

After viewing the Ames Lab display, the Secretary and the media moved on to view other DOE exhibits. Later in remarks to the media, the Secretary applauded the efforts of the DOE labs to develop cutting-edge technologies that, in particular,

reduce greenhouse gas emissions. "The only way we'll address these challenges is through new technologies, and a lot of them will come through our national labs," said Abraham.

Following Abraham's visit to the Ames Lab display, numerous other interested individuals stopped to talk to Gschneidner and Pecharsky, and Zimm and Steve Russek from Astronautics. Among them was Michigan Gov. John Engler. ■

~ Steve Karsjen

Command Performance

In a command performance, Ames Laboratory was asked to present its magnetic refrigeration display at a special ceremony at DOE Headquarters in Washington, D.C., May 17. The ceremony, sponsored by DOE Secretary Spencer Abraham, was held to mark the one-year anniversary of President Bush's National Energy Policy. In addition to Secretary Abraham, Secretary of the Interior Gale Norton and EPA Administrator Christine Todd Whitman visited the Ames Lab display and a select group of other displays promoting cutting-edge research at the DOE labs. Following their visits, they delivered remarks on the National Energy Policy. Calling it "remarkable progress" in just 12 months, the Secretary said 21 of the 22 specific proposals contained in the energy policy have already either been enacted into law or are contained in House or Senate energy bills headed to Conference committee. Adding that it is a "road map into the needs of the 21st century," Whitman said the President's energy policy demonstrates that the nation's energy needs can be met in an environmentally sensitive way. ■



DOE Secretary Abraham (right) and Secretary of the Interior Gale Norton listen as Steve Karsjen, Public Affairs, explains Ames Lab's magnetic refrigeration display.